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BY

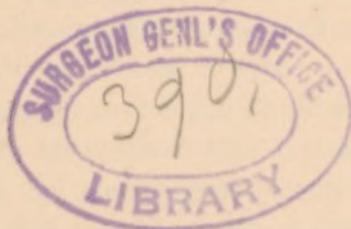
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## COCAINE IN THE TREATMENT OF ACUTE INFLAMMATIONS OF THE EAR.

BY JULIUS WOLFENSTEIN, M. D.,  
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THE well-known local anaesthetic properties of cocaine have also occasionally caused its use in acute inflammatory conditions of the ear to ameliorate the pain which is an almost constant accompaniment of these affections.

In the beginning of my experience with this class of cases I used cocaine to combat the pain which an attack of acute inflammation of the membrana tympani or of the middle ear occasions. In order to allay the pain I found it necessary to use the cocaine solution more frequently than is generally recommended by the few authors who have used it in these affections; and in this way I further observed that almost all of my patients with acute otitis media recovered without suppuration having occurred, while formerly suppuration supervened in quite a number of my cases.

I have not kept an exact statistical report, but I judge that I have treated about one hundred cases of acute otitis media, also a few cases of acute inflammation of the membrana tympani, the so-called myringitis acuta, with the

cocaine solution during the past four years, and in only four or five per cent. suppuration occurred. And, further, in two or three of these cases the suppuration was directly attributable to neglect on the part of the patient.

It is true that many cases of acute otitis media terminate without suppuration, but I hardly believe this to be the result in ninety-five per cent. of all cases as it happened in my experience.

Of the one hundred cases, about eighty-five occurred in children from five to about fifteen years of age, and I had the opportunity of observing these cases from their earliest incipiency to their termination. I reside in an orphan asylum with an average inhabitancy of over four hundred children, and I have thus had the rather rare opportunity of seeing almost all these cases in their very beginning. The first thing a child with a beginning otitis media acuta will complain of is pain, or "earache," as it is commonly termed. An examination will reveal the blood-vessels of the membrana tympani—which, as a rule, are invisible under normal conditions to the naked eye—enlarged and plainly visible as delicate red streaks, radiating from the center of the drum membrane to its circumference, and the whole membrana tympani of a dull reflex.

Immediately about five or six drops of a five-per-cent. hydrochloride-of-cocaine solution are instilled into the external canal, the head of the patient being bent to insure contact of the cocaine solution with the inflamed drum membrane. The external canal is then closed with a piece of absorbent cotton. After ten or fifteen minutes the pain disappears and the little patient is ordered to come again when he has pain. If the inflammation is rather severe this will occur in a few hours, when the solution of cocaine is again instilled, and so on until all pain has ceased. With the diminution of the pain the inflammation appar-

ently disappears, at least an examination reveals the drum membrane much paler and the blood-vessels much less distinct.

Sometimes a single instillation is sufficient to abort an attack of acute inflammation of the ear; this I have especially noticed in the cases of acute inflammation of the drum membrane which occur so frequently during the bathing season, where cold water is forcibly driven into the external ear against the drum membrane. In this connection I remember the case of my brother, who some time ago went bathing in the lake and who had some water forced into his ear. An hour afterward he complained of severe pain, and, on examination, I found the membrana tympani very much reddened and already apparently inflamed. Two instillations of a five-per-cent cocaine solution were made at an interval of two hours, and next morning the drum membrane had an almost normal aspect again. The pain subsided in fifteen minutes. This is a typical case, especially when seen in the beginning.

The cases of acute otitis media generally require only two or three days' treatment with the cocaine solution. After two or three instillations the drum membrane begins to fade, the redness begins to disappear, and the pain is generally gone. I generally order the instillations to be continued for a day or two about three times daily after the pain has disappeared—in fact, as long as there is any considerable redness of the drum membrane.

All ordinary cases of acute middle-ear inflammation will generally subside under four or five instillations daily. It is hardly necessary to add that during unfavorable weather or in severe attacks of the inflammation the patient is ordered to stay indoors, or that any complications, like fever, acute rhinitis, pharyngitis, etc., are to be treated in the ordinary manner.

Besides the rapid disappearance of the pain and inflammation with the cocaine treatment of acute otitis media there are two other points I would like to mention. Firstly, the hearing picks up very rapidly, which is quite a favorable point, since if left to itself, or even with regular inflation of the middle ear, it generally requires fully two weeks for the hearing to again become normal. Then, secondly, the tinnitus, which is often quite aggravated in acute otitis media, seems also to be favorably affected, together with the inflammation, and generally after several instillations no great amount of tinnitus is complained of, although this is not as universally the case as the subsidence of the pain and inflammation with the cocaine treatment.

In acute inflammations of the drum membrane proper there is hardly ever any tinnitus and very seldom any diminution of hearing, so that for these cases the cocaine treatment can almost be called ideal.

In severe cases where suppuration impends and where pus is already formed (I remember of one such case in my practice) the cocaine solution must be used more frequently—every hour or two—until the pain ceases. In some very severe cases, where the drum membrane was so inflamed and swollen that its normal configuration was entirely destroyed, and even in the one case where pus had already formed and could be seen shining through at one point of the thinned membrane, the persistent and persevering use of instillations of the five-per-cent. cocaine solution, and in the last-mentioned case of an eight-per-cent. solution, prevented suppuration. In order to establish more fully the correctness of this manner of treating acute inflammations of the ear, I will mention my experience with six cases of aural complications of scarlatina, surely, together with diphtheria, the most malignant and severe types of acute middle-ear inflammations. In the six cases

the cocaine solution was applied hourly until pain ceased, and I was fortunate enough to avoid suppuration in all of them. Of course I saw the cases very shortly after the patients complained of pain, since they all occurred during two epidemics of scarlet fever in the asylum.

In the cases of acute otitis media in which suppuration occurred in spite of the cocaine instillations, it was due, firstly, in two or three cases directly to negligence in not following the directions given the patients, and, secondly, in the remaining few cases the disease had already passed the stage where suppuration could be avoided.

In adults the same favorable results were obtained as in the children mentioned above.

This experience is given after a fair trial, and I think I can say, without adding any hypothetical reasons as to the cause of the results obtained, that cocaine not only acts as an analgesic in acute inflammatory conditions of the ear, it is also an antiphlogistic in these cases, and, further, that suppuration can almost always be avoided, especially when the cases are seen early enough.

A few words more as to the cocaine solution and its application. In the beginning I did not always obtain as good and as rapid results as I now do. But since I have used Merck's crystallized hydrochloride of cocaine I am perfectly satisfied. Then I generally use a five-per-cent. solution in distilled water, with a few grains to the ounce of boric acid to insure the stability of the solution. The solution is warmed to the temperature of the body before instilling into the ear. In very severe inflammations an eight- to ten-per-cent. solution is used.

In conclusion, I should like to add that I have never seen the slightest toxic effects from the cocaine in these cases.









